

**DEPARTMENT OF FISH AND GAME**<http://www.dfg.ca.gov>

Central Region  
1234 East Shaw Avenue  
Fresno, CA 93710  
(559) 243-4005

August 31, 2007

**RECEIVED**

AUG 31 2007

RWQOB-CVR  
FRESNO, CALIF



Anthony Toto  
Regional Water Quality Control Board  
1685 E Street  
Fresno, California 93706

Dear Mr. Toto:

**Triennial Review for the Tulare Lake Basin**

The California Regional Water Quality Control Board, Central Valley Region (Water Board), is engaged in the Triennial Review (Review) for the Tulare Lake Basin Plan (Basin Plan). The Basin Plan assigns existing and potential beneficial uses of surface and ground waters within the Tulare Lake Basin and establishes water quality objectives (numeric and/or narrative) to protect those beneficial uses. In addition, if a water quality objective is not met and, therefore, an assigned beneficial use is compromised or unobtainable, the Basin Plan can be used to detail an implementation plan to moderate discharges to the water body and restore the ability of the waters to support the beneficial uses.

The Water Board is seeking comments on water quality issues the Basin Plan should address and is establishing priorities for concerns that are identified during the Review. There are several policies and beneficial use assignment issues the Water Board should consider in this Review, which could specifically affect biological resources designated to the jurisdiction of the Department of Fish and Game (Department) as a Trustee Agency under the California Environmental Quality Act (CEQA) and under the Fish and Game Code. Any changes in water quality objectives or beneficial use assignment of either surface or ground waters in the Tulare Lake Basin could potentially affect wetlands, uplands, riparian and other habitat types, and the populations of plants and animal species that rely on them for survival in perpetuity.

**General Comments:**

The Basin Plan does not currently address wetland beneficial uses and the regulation of discharges to wetlands, either through surface or ground waters. The Basin Plan should also be amended to either a) initiate a formal review process, or b) incorporate certain segments of surface waters in the Tulare Lake Basin into the Federal Clean Water Act 303(d) list of impaired water bodies. The Water Board

*Conserving California's Wildlife Since 1870*

Anthony Toto  
August 31, 2007  
Page 2

should consider basing such amendments on technically defensible monitoring information on water quality objective exceedances gathered under the Water Board's Irrigated Lands and the Surface Water Ambient Monitoring Programs (SWAMP) and other sources of reliable data. Concurrent with the recommendation to list impaired surface water segments, the Basin Plan may also need to address how an implementation plan (e.g., total maximum daily loads) for those impacted water quality segments may comply with the water quality objectives and restoration of the beneficial uses.

The Department recommends that surface water beneficial uses of specific surface waters (Kings, Kaweah, Tule, and Kern Rivers; Poso Creek; Other East Side Streams; such as Poso and Deer creeks, West Side Streams; and Valley Floor Waters) **NOT** be amended to remove such assigned beneficial uses as COLD (Cold Freshwater Habitat), WARM (Warm Freshwater Habitat), WILD (Wildlife Habitat), and RARE (Rare, Threatened, or Endangered Species) and that the Kings, Kaweah, Tulare Lake, Tule and Westside ground water hydrologic units be amended so that the beneficial use of WILD and RARE is added to each hydrologic unit in the Basin.

The Tulare Lake Basin is hydrologically a partially closed basin. Natural hydrology in streams and rivers within the watershed have been altered to benefit many uses. This Basin annually receives significant water supplies from the San Joaquin Basin (via Friant-Kern Canal – Central Valley Project) to the north and on the east side of the Valley, as well as blended water supplies originating from San Joaquin and Sacramento watersheds and imported from the South Delta via the California Aqueduct and from the Delta Mendota Canal. Flood waters are both stored and reused within and outside this Basin. Groundwater lifted to the surface throughout the Basin is also a significant element of sustaining beneficial uses addressed in your Plan. Some water originating from or delivered to this Basin is exported as well. The quality and quantities, origins, patterns of delivery and geographic distributings of this mosaic of surface water entering and leaving this Basin is quite variable, yet annually protect the designated beneficial uses. We recommend that the Plan recognize and incorporate planning that recognizes these dynamics and capitalizes on them within and across water years to help protect the beneficial uses in the Basin.

There are several independent yet connected planning efforts underway in the Tulare Lake Basin watershed that may influence the freshwater supplies available to help sustain the beneficial uses in this Basin. Some of these efforts are associated with the Department of Water Resources Integrated Regional Water Management Program. The Basin Plan should incorporate an element which

Anthony Toto  
August 31, 2007  
Page 3

encourages the integration of water supply development and reliability, flood control and wetland restoration with the strategies to sustain the designated beneficial uses in this Basin. While using augmentation actions under this approach may require attention of both the Water Board and the State Water Resources Control Board, we believe such an approach is necessary in this complex Basin.

### **Specific Comments:**

#### **1. *Wetland Beneficial Uses, Loss, and Degradation***

The Basin Plan does not address the loss of wetlands through dredge and fill activities or the degradation of wetland habitat from discharges of other constituents of concern (pesticides, salts, excess nutrients, etc.) to surface and/or ground waters.

To regulate fill and dredge activities under the present regulatory framework, the Water Board uses existing authorities under the Federal Clean Water Act (CWA), Section 404, and 401 Water Quality Certification in wetlands in tandem with the United States Army Corps of Engineers (ACOE). The limitation of this is that it does not address the lack of clarity regarding the regulatory framework and gap left by those wetlands that are no longer subject to permitting jurisdiction under the CWA, specifically, so-called "isolated" waters as discussed in the SWANCC and the more recent Rapanos decisions. Based on the broad definition of what is a "Water of the State," isolated wetlands do meet this designation and, therefore, dredging/fill activities that could affect the quality of these water bodies would be subject to the California Water Code (CWC).

Much of the vernal pool and wetland conversion in the Tulare Lake Basin occurs on lands where these wetlands would be disclaimed as jurisdictional by the ACOE in light of the SWANCC/Rapanos decisions, but would qualify as "Waters of the State." Further, the Basin Plan has no definition of wetlands and riparian areas, and, consequently, there are no assigned beneficial uses (i.e., Wildlife Habitat; Rare, Threatened, or Endangered Species; Ground Water Recharge, etc.) or corresponding water quality objectives (numeric or narrative, such as specific conductance, ammonia, pH, three species toxicity indices, percentage of vegetative cover, etc.) that are standardized requisites for evaluating whether wetlands and/or riparian habitat meet the conditions required to support beneficial uses. This is significant because it hinders a consistent regulatory approach (permitting through waste discharge requirements [WDR]) and gives no standard measurement in evaluating the need for an enforcement action, pursuant to the CWC. The Water Board should address this discrepancy during this Basin Plan Review process.

Anthony Toto  
August 31, 2007  
Page 4

Beyond the permitting process that is occurring under both Section 404 and the State's 401 Certification, there are no coherent criteria or a mechanism for determining if compensatory or created mitigation wetlands required under the permitting process, are 1) functional, 2) support like species complexes over time, and 3) indeed do fully compensate, in terms of quality, on an acre-for-acre basis. A study completed in 2006 by researchers at University of California, Los Angeles, through a contract with the State Board, demonstrated that on an acre for acre basis the State was meeting the "no net loss" portion of its Wetland Policy, but was not meeting this goal in terms of the compensatory wetlands having the same *value and functions* as the wetlands that were lost in the project execution process. Furthermore, as mentioned above, the study focused solely on wetlands where mitigation was conducted under a 404/401 permit condition and did not reflect the loss of wetlands outside the regulatory process.

The lack of a regulatory enforcement to non-point discharges that contain constituents such as salts, nutrients, pathogens, or pesticides needs to be addressed to elevate wetland and riparian protection to a higher priority from these very real threats. In the Central Valley (see the 2006 proposed list<sup>1</sup>), the most common potential sources of "pollutant/stressor" on the 303(d) list of impaired surface water bodies are discharges from non-point sources, such as urban runoff/storm water sewers, agriculture (irrigated agriculture and dairies), and resource extraction. The most common pollutants identified are pesticides (organophosphates, carbamates, and pyrethroids), pathogens (*E. coli*), and heavy metals, such as mercury and copper. It is reasonable to expect that upland non-point source discharges of these constituents to wetlands, such as vernal pools, could have the same significant impacts, in terms of water quality impairment, on the species (vernal pool invertebrates, listed plant species, California tiger salamander) that rely on the quality of these waters, that these discharges have on identified impaired surface water bodies.

The Basin Plan should also address discharges to ground water and the impact the changes in ground water quality may have on vernal pools and other wetlands and uplands in areas where very shallow, first-encountered ground water is an integral component of wetland and upland hydrology. The ACOE describes the dominant hydrodynamics and geomorphic controls of California vernal pools and wetlands as vertical from either ground water or precipitation into depressions. These controls are responsible for maintaining many of the

---

<sup>1</sup> California Regional Water Quality Control Board Central Valley Region. Proposed 2006 CWA Section 303(D) List of Water Quality Limited Segments.  
[http://www.waterboards.ca.gov/tmdl/docs/303dlists2006/final/r5\\_final303dlist.pdf](http://www.waterboards.ca.gov/tmdl/docs/303dlists2006/final/r5_final303dlist.pdf).

Anthony Toto  
August 31, 2007  
Page 5

functional aspects of wetland ecosystems, including the chemical characteristics of waters, habitat maintenance, and water storage and transport.<sup>2</sup> In particular, constituents, such as salts or the change in the species of salt (e.g., from an electrical conductivity driven by boron to sodium, chloride, magnesium or phosphorus), nutrients, and pesticides discharged to ground water from irrigated lands, confined animal facilities, and cropland associated with these facilities, could potentially impact the quality of these wetland waters and the plants and animals that utilize these habitat types. The Basin Plan should disclose and recognize that there needs to be a two-pronged regulatory approach and assess the impacts, including cumulative, of discharges from both surface and ground waters that interface with wetlands.

### **Recommendations**

The Basin Plan should be amended to:

- Advance the actuality that wetlands are a "Water of the State;" and present a clear definition of what constitutes a wetland;
- Acknowledge that the pollutants and stressors to wetlands come from many non-point sources and frame a strategy to regulate a variety of discharges and activities that impact wetlands and riparian areas, including, but not limited to, dredge or fill material, discharges of other pollutants from irrigated agriculture, urban storm water, or resource extraction; hydromodification; land and vegetation clearing activities; and invasive species;
- Assign beneficial uses that establish the values and functions of wetlands;
- Assign measurable water quality objectives (whether narrative, biological, or numeric) that will standardize the requisite tools for evaluating whether the assigned beneficial uses of both existing and created wetlands are supported;
- Assign the WILD and RARE beneficial uses to the Kings, Kaweah, Tulare Lake, Tule, and Westside ground water basins (e.g., Tulare Lake Basin units 241 and 246) where shallow, first-encountered ground water interfaces with vernal pool complexes and other wetland habitat;
- Clarify the regulatory structure to address the gap left by those wetlands that are no longer subject to permitting jurisdiction under the CWA, specifically, so-called "isolated" waters;

---

<sup>2</sup>Brinson, M. M. A. *Hydrogeomorphic Classification for Wetlands*. 1993.

Anthony Toto  
August 31, 2007  
Page 6

- Establish a "consultation" procedure between the Water Board and the Department (similar to the Section 7 consultation process initiated by the ACOE with United States Fish and Wildlife Service) during the CEQA equivalent regulatory process to engage the Department as a Trustee Agency for fish and wildlife resources responsible for providing, biological expertise to review and comment upon environmental documents (permit applications, tentative WDRs, or Waivers of WDRs) and impacts arising from project activities, as those terms are used under CEQA (Division 13, commencing with Section 21000, of the Public Resources Code); and
- Construct a comprehensive schedule for meeting regulatory milestones to regulate discharges to wetlands that would quickly advance the dredge and fill permitting priority for waters determined non-jurisdictional under the federal CWA.

## **2. Impaired Surface Water Segments**

The Executive Summary of the Water Board's 2007 Draft Review of Monitoring Data (Report)<sup>3</sup> of surface waters throughout the Central Valley listed the following general observations about water quality conditions.

- The percentage of demonstrable toxicity to the fathead minnow (*Pimephales promelas*) increased in surface waters as one moved south through the Central Valley. The key contaminant associated with mortality to the fathead minnow is ammonia, although the Water Board acknowledged high levels of pesticides will also cause minnow toxicity.
- Toxicity to the water flea (*Ceriodaphnia dubia*) was exhibited throughout the Central Valley and was sufficient enough (percentage of toxic samples) to warrant further review. Toxicity to the water flea is associated with organophosphate pesticides at concentrations lower than what would typically affect the fathead minnow.
- Toxicity to blue-green algae (*Selenastrum capricornutum*) is widespread in the Central Valley. Toxicity to algae is generally associated with herbicides and metals, such as copper, a common constituent found in dormant sprays for orchards and algacide for irrigation water supply channels (copper hydroxide).

---

<sup>3</sup> California Regional Water Quality Control Board Central Valley Region. *Revised Draft 2007 Review of Monitoring Data Irrigated Lands Conditional Waiver Program*. 13 July 007.  
[http://www.waterboards.ca.gov/centralvalley/programs/irrigated\\_lands/monitoring\\_activity/index.html](http://www.waterboards.ca.gov/centralvalley/programs/irrigated_lands/monitoring_activity/index.html)

Anthony Toto  
August 31, 2007  
Page 7

- Sediment toxicity occurs throughout the Central Valley. Studies conducted by the University of California in the Central Valley strongly suggest that sediment toxicity to the amphipod (*Hyalella azteca*), is caused by pyrethroids, the replacement pesticide for organophosphates.
- Predominant pesticides detected in surface water throughout the Central Valley monitoring sites include chlorpyrifos, diazinon, simazine, diuron, and DDT/breakdown products.
- In 2005, the California Department of Pesticide Regulation listed the top three ranked counties as 1) Fresno, 2) Tulare, and 3) Kern, in terms of pounds of pesticides applied, all which were located within the Tulare Lake Basin.

The Tulare Lake Basin was identified in the Report as Zone 4. Surface water quality monitoring data utilized in the trend analysis for the Report were obtained from sample results from the South San Joaquin Valley Coalition, the Westlands Coalition, a University of California study completed for the Irrigated Lands Program; and the Water Board's own SWAMP. All the surface water sample sites that demonstrated statistically significant water column and/or sediment toxicity were located downstream of the major reservoirs in the four watersheds (Kings, Kaweah, Tule, and Kern Rivers) of the Basin, in areas dominated by irrigated agriculture as a land use, either associated with confined animal facilities (dairies), orchards, or row crops, such as cotton. The water and sediment quality data reported for Zone 4 were for a period commencing in 2004 and ending in 2007, where samples were collected during storm season (December through March), irrigation water delivery season (April through July), and the dry season (August through November), to tease out temporal/spatial differences both within and between watersheds in the Basin. Moreover, all the monitoring results provided in the Report appear to meet strict quality control and quality assurance standards (for both the data collected through the Irrigated Lands and the Water Board's own SWAMPs), as outlined in the State Water Board's Surface Water Ambient Monitoring Quality Assurance Program Plan and the Irrigated Lands Conditional Waiver and Monitoring and Reporting Program Order for surface water sampling and analysis. Therefore, interpretation of the results from the two differing programs could be characterized as comparable and technically defensible.

The Report states that monitoring results collected across four years indicated; 22 of 254 (9%) samples demonstrated toxicity to the fathead minnow (Kings River, Stone Corral, Kaweah River, Elk Bayou, Tule River, and Deer Creek); 9 of 254 (3.5%) samples demonstrated significant toxicity to the water flea (Kings

Anthony Toto  
August 31, 2007  
Page 8

River, Stone Corral, Panoche Silver Creek, Button Ditch, Elk Bayou, Fresno Slough, Bates Slough, and Elk Bayou); and 21 of 71 (30%) surface water channel sediment samples (St. John's River, Stone Corral, Cross Creek, Main Drain Canal at Highway 46, Tule River, Panoche Silver Creek, Wooten Creek, Elbow Creek, King Ditch, Stinson Ditch, Turner Ditch, Kinestirc Ditch) demonstrated significant toxicity to *Hyalella*. Generally, the greatest frequency of water column toxicity in the Tulare Lake Basin was to the blue-green algae test species *Selenastrum* (James Bypass, Fresno Slough, Kings River, West Reedley Ditch, Button Ditch, Cross Creek, Elbow Creek, Stone Corral, St. John's River, Kaweah River, Packwood Creek, Outside Creek, Tule River, Deer Creek, Bates Slough, Elk Bayou, Porter Slough) where 131 of 258 (51%) samples collected over the three years demonstrated statistically significant toxicity. Several sites (Fresno Slough, Kings River, Button Ditch, Stone Corral, Kaweah River, St. John's River, Elk Bayou, Tule River, Deer Creek, Bates Slough, and Main Drain Canal at Highway 46) exhibited statistically significant toxicity to more than one species (e.g., minnow and algae) in a single sample, as well as over multiple sampling events.

The Basin Plan (III-1) currently states, in part, that the Review provides an opportunity to evaluate the effectiveness of existing water quality objectives because the Review begins with an identification of potential and actual water quality problems. One of the actions utilized to identify and prioritize the Water Board actions includes assessment, which the Water Board's 2007 Draft Review of Monitoring Data does in multiple watersheds and on multiple surface water bodies within the Tulare Lake Basin. The pesticide and toxicity water quality objectives in the Basin Plan for inland surface waters are narrative objectives. The toxicity objective states "*all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life,*" and the pesticide water quality objective states, in part, "*waters shall not contain pesticides in concentrations that affect beneficial uses.*" In addition, the water quality objective for ammonia is numeric and states "*in no case shall the discharge of wastes cause concentrations of un-ionized ammonia (NH<sub>3</sub>) to exceed 0.025 mg/l in receiving waters.*" The information cited above indicates that there appears to be a Basin-wide toxicity, pesticide, and/or ammonia problem in multiple watersheds and multiple surface water bodies within the Basin. These toxicity exceedances (from pesticides or ammonia or both) could adversely affect the plant and copepod/amphipod or macroinvertebrate trophic levels in these waters (potentially limiting the water body from supporting the WARM, WILD, RARE assigned beneficial uses), thus, directly (in the case of ammonia exceedances) or indirectly affecting the fish and wildlife resources that depend on the waters.



Anthony Toto  
August 31, 2007  
Page 9

### **Recommendations**

The Basin Plan should be amended to:

- Acknowledge that, based on the 2007 Draft Review of Monitoring Data (Zone 4 Report), surface water toxicity is present in multiple watersheds and in multiple water bodies within the Tulare Lake Basin. The probable causes appear to be pesticides and ammonia;
- Update Section IV, Implementation Plan, of the Basin Plan to include a section under "Water Quality Concerns" that discusses the state of surface water quality within the Basin, which includes the water quality results and information from the Water Board's 2007 Draft Report. The update should state which segments of specific water bodies appear to be impaired (i.e., do not meet the water quality objective for toxicity, pesticides, ammonia, electrical conductivity, etc.); which surface water bodies may need additional comprehensive water quality monitoring, including toxicity testing, to accurately assess whether beneficial uses are being supported; and a comprehensive timeline for meeting these objectives prior to the next Triennial Review; and
- Update the "Agriculture", "Irrigated Agriculture," and "Confined Animal Facilities" sections of Section IV to reflect both the beneficial effects, and the significant impact irrigation return waters and storm water discharges, containing such pollutants as ammonia, pesticides (organophosphates, carbamates, and pyrethroids), pathogens (*E. coli*), and heavy metals, such as mercury and copper; from these non-point sources, can have on surface waters, wetlands, and ground waters throughout the Basin.

### **3. Beneficial Uses**

The Department strongly recommends that beneficial uses assigned to specific surface waters (Kings, Kaweah, Tule, and Kern Rivers; Poso Creek; Other East Side Streams; West Side Streams; and Valley Floor Waters, as described in the Tulare Lake Basin Plan) **NOT** be amended to remove such assigned beneficial uses as COLD, WARM, WILD, and RARE. These surface waters provide important aquatic habitat, support riparian habitat and nesting habitat for song birds and raptors, and provide linkage and wildlife movement corridors throughout the Tulare Lake Basin. Additionally, some of these surface waters are used to sustain important wetlands and wildlife refuges that provide a significant portion of the Basin grassland habitat and salt scrub marshland/wetland habitat which supports many of the endangered species that

Anthony Toto  
August 31, 2007  
Page 10

occur in the Tulare Lake Basin. For example, where a water quality objective is potentially exceeded (such as the narrative water quality objective for toxicity) as the result of a discharge, the Water Board must determine if the water quality objective is the indicator of whether a specific beneficial use assigned to the water body is compromised or unsupported. If that beneficial use is not assigned to the water body where the water quality objective was exceeded or not met, the lack of the beneficial use assignment could preclude the Water Board from pursuing enforcement action on discharges of toxic constituents to that water body. In the case of the Tulare Lake Basin, the loss of any assigned beneficial use that supports biological resources could be potentially significant and should be fully disclosed, prior to the amendment of the Basin Plan during this Review.

Thank you for the opportunity to comment on the Plan during this Triennial Review. While these comments may be concerning, please accept that we understand the challenging issues ahead in this Basin and remain committed to actively helping as partners in programmatic solutions going forward. If you have any questions regarding these comments, please contact Andrew Gordus, Ph.D., Staff Environmental Scientist, at the address provided on this letterhead or by telephone at (559) 243-4014, extension 239.

Sincerely,



W. B. Loudermilk  
Regional Manager

cc: See Page 11

Anthony Toto  
August 31, 2007  
Page 11

cc: David Hardt David Orth  
Kern National Wildlife Refuge  
Post Office Box 670  
Delano, California 93216-0670

Kings River Conservation District  
4886 East Jensen  
Fresno, California 93725

John Engbrins  
United States Fish and  
Wildlife Service  
2800 Cottage Way  
Sacramento, California 95825

Doug Davis  
Tulare Lake Drainage District  
Post Office Box 985  
Corcoran, California 93212

Ruth Ostroff  
Central Valley Joint Venture  
2800 Cottage Way  
Sacramento, California 95825

Carole Coombes  
Tulare Lake Wetland Partner  
Post Office Box 1180  
Three Rivers, California 93271

Department of Fish & Game  
Carl Wilcox, Water Branch Chief  
Sacramento, California

Sandra Morey, Acting Deputy Director  
Regional Operations  
Sacramento, California

Bud Leland  
Office of Spill Prevention & Response  
Sacramento, California